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REGIONAL ADMINISTRATOR

May 27, 2011

Colonel Philip T. Feir
Commander, New England District
U.S. Army Corps of Engineers
696 Virginia Road
Concord, MA 01742-2751

Re: EPA Comments on the South Coast Rail Project Draft Environmental Impact Statement/
Draft Environmental Impact Report (CEQ file number 20110095) and Response to Corps Public
Notice File Number NAE-2007-00698

Dear Colonel Feir:

In accordance with our responsibilities under the National Environmental Policy Act (NEPA), Section 404 of the Clean Water Act (CWA), and Section 309 of the Clean Air Act (CAA), we have reviewed the U.S. Army Corps of Engineers' (Corps) Draft Environmental Impact Statement (DEIS) for the South Coast Rail Project in southeastern Massachusetts.¹ This letter serves as our comment on the DEIS and the Corps' Public Notice of a CWA Section 404 permit for the project. The DEIS was prepared following an extensive public and interagency coordination process led by the Massachusetts Department of Transportation (MassDOT) and the Corps that began in 2008. EPA was an active participant in that process as a cooperating agency.

The DEIS details plans by MassDOT to improve public transit service between the cities of New Bedford and Fall River and Boston. As described in the DEIS, the basic project purpose is "to more fully meet the existing and future demand for public transportation between Fall River/New Bedford and Boston, Massachusetts." (DEIS page 1-1). The DEIS considers the No Build alternative, three rail service alignment alternatives (the Attleboro, Stoughton and Whittenton routes) with options for diesel and electric service, and a Rapid Bus alternative to achieve the project purpose. As required by the Massachusetts Environmental Policy Act (MEPA), MassDOT (in the preface to the DEIS) identifies the Stoughton route as its preferred alignment for the project. The Corps has not yet identified the Least Environmentally Damaging Practicable Alternative (LEDPA) for the project and it intends to use public comments on the DEIS to help make that determination prior to issuance of the Final Environmental Impact Statement (FEIS).

EPA supports the Commonwealth's desire to expand transportation mode choice in the South Coast region in an environmentally responsible manner. The DEIS explains that increasing

¹ We note that the joint DEIS has also been prepared to allow MassDOT to meet the requirements of the Massachusetts Environmental Policy Act.

transit access to the South Coast will result in improvements to regional air quality (through reductions in Vehicle Miles Traveled) and reductions in greenhouse gas emissions, support opportunities for transit oriented development, and stimulate overall economic development in the region². We believe a major transit project for the region that meets the basic project purpose also has the potential to bring these benefits, particularly air pollution reductions and support for sustainable development in the South Coast region.

Regardless of the transit alternative ultimately selected, continuing firm commitments and funding by the Commonwealth will be necessary to support a smart growth future for the region. We commend MassDOT for its significant investments to date in working with communities and regional planning agencies to develop the 2009 *South Coast Rail Economic Development and Land Use Corridor Plan*. The corridor plan is based on smart growth principles and describes the steps necessary to promote more sustainable development in the South Coast region in conjunction with increased transit service. MassDOT is supporting the plan by providing smart growth technical assistance to communities in the region. EPA encourages MassDOT to continue their collaborative efforts in order to maximize the smart growth benefits that accrue to any future public transportation investments.

The Corps' analysis of the project under NEPA and the CWA is a critical step in the decision making process for this project, against the backdrop of the longstanding public controversy regarding alternatives and alignments, sources for project funding and operation, and related concerns about the potential for significant direct and indirect impacts to communities and the natural environment. Our attached comments highlight a number of concerns and comments about the project and the DEIS that will need to be addressed during the remainder of the NEPA/404 process. With a few notable exceptions (more fully described below and in the attachments to this letter) we believe the DEIS effectively discusses potential impacts associated with the project alternatives. The DEIS also thoroughly analyzes potential induced development effects and potential impacts to environmental justice communities.

The DEIS provides sufficient information to support the conclusion that the Attleboro alternatives are not practicable and can be eliminated. We also believe the information in the DEIS adequately supports the Corps' decision to continue consideration of the other rail alternatives and the Rapid Bus alternative at this time. We recognize that the Commonwealth does not believe that the Rapid Bus alternative achieves their goals. In this regard, we will review any additional information provided by the Commonwealth and comments received on the DEIS to inform our recommendation to the Corps on the LEDPA.

Our concerns about the DEIS are related to the characterization of direct and indirect (secondary) impacts to wetlands and other waters of the U.S., and the scoring system used to compare impacts and rank the various alternatives under consideration. These result in understating

² Reestablishment of transit service to South Coast region has been extensively studied on and off over the past twenty years, with the most recent effort following the release of the Commonwealth of Massachusetts' Executive Office of Transportation and Public Works report entitled, "South Coast Rail: A Plan for Action" dated April 4, 2007. That report, and others that precede it, highlight the Commonwealth's desire to increase transit access to the South Coast region of the state.

impacts to aquatic resources in the Stoughton and Whittenton alignments and overstating impacts to aquatic resources from the Rapid Bus alternative. Based on these and other concerns detailed in the attachment to this letter, we believe the DEIS does not provide enough information for EPA to assess compliance with the Section 404(b)(1) Guidelines. We will make our recommendations to the Corps for the LEDPA determination, among other issues, once we have the opportunity to review and discuss with the Corps additional information concerning impacts to aquatic resources.

As explained above and described in detail in Attachment B to this letter, the Region may have serious concerns regarding alternatives and direct and indirect (secondary) adverse impacts to aquatic resources. In the event that we do not agree with the Corps District's ultimate conclusions regarding those issues, including practicability of alternatives, severity of impacts, and whether a compensatory mitigation plan could adequately address those impacts, we are preserving our ability to raise these unresolved issues to senior officials at both EPA and the Department of Army.³

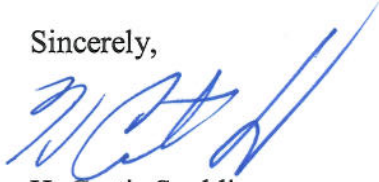
In addition, and in accordance with EPA's national rating system, a description of which is attached to this letter, we have rated the DEIS EC-2-"Environmental Concerns-Insufficient Information." As noted above and in Attachment B, additional information is needed on the full extent of the impacts of the alternatives on aquatic resources, which is necessary to, among other reasons, inform our recommendation regarding the LEDPA. Attachments A and B to this letter offer some recommendations regarding additional information that should be provided going forward in the NEPA and Section 404 process.

We appreciate the opportunity to participate in numerous workgroup meetings to discuss the project over the past few years and to provide our comments on the DEIS and Public Notice. We encourage MassDOT and the Corps to continue to reach out to local, state and federal agencies and the public for input as the NEPA/404 process advances. EPA recognizes the importance of this project to the Commonwealth, and we reiterate our commitment to work with the Corps and MassDOT to continue to review new information as it is developed, and to address outstanding issues as the NEPA/404 processes advance for the project.

³ We believe the proposed project may have a substantial and unacceptable impact on aquatic resources of national importance. This letter follows the field level procedures outlined in the August 1992 Memorandum of Agreement (MOA) between EPA and the Army Corps of Engineers, Part IV, paragraph 3(a), regarding 404(q) of the Clean Water Act, 33 U.S.C. 1344(q). After we have evaluated the project further, and as required by Part IV, paragraph 3(b) of the MOA, I will notify you within 25 calendar days of the date of this letter (i.e., no later than June 21, 2011) whether and why we believe the project will have substantial and unacceptable adverse impacts to aquatic resources of national importance.

Please feel free to contact me or Timothy Timmermann of EPA's Office of Environmental Review at 617-918-1025 or Matt Schweisberg of EPA's Office of Ecosystem Protection at 617-918-1628 if you wish to discuss these comments further.

Sincerely,



H. Curtis Spalding
Regional Administrator

Enclosures

cc:

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Summary of Rating Definitions and Follow-up Action

Environmental Impact of the Action

LO--Lack of Objections

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC--Environmental Concerns

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

EO--Environmental Objections

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU--Environmentally Unsatisfactory

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

Adequacy of the Impact Statement

Category 1--Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2--Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3--Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

Attachment A: Detailed EPA Comments on the South Coast Rail Project Draft Environmental Impact Statement

Environmental Effects from Induced Growth

General

The DEIS provides an excellent analysis of the potential for environmental effects from growth that may be induced by the build alternatives. The approach is one of the best that we have seen in our review of Environmental Impact Statements, and may serve as a model for future transportation projects. The DEIS makes a compelling case that smart growth development of the South Coast region is better for the environment than “business as usual,” regardless of the transit improvements ultimately implemented. One concern we have, however, is whether MassDOT can ensure that future development will follow a smart growth pattern since it will take concerted commitments by state and local governments as well as the private sector to make this happen. We commend MassDOT for the significant investments it has made to date in developing the 2009 *South Coast Rail Economic Development and Land Use Corridor Plan* and providing technical assistance to communities in the South Coast region. We recognize that Chapter 7 of the Corridor Plan addresses implementation, as does the DEIS (page 5-27), but both in a relatively general manner. The magnitude of environmental impacts from induced growth will depend on the extent to which smart growth is achieved, so it is important to understand the actions that the Commonwealth commits to undertake.

We recommend that the FEIS describe firm, detailed commitments that the Commonwealth is prepared to make to support a smart growth future for the region. For example, one of the assumptions made in creating the smart growth scenario is that “infrastructure constraints will be overcome within reason” and that the Commonwealth will help “support investments in infrastructure to realize more compact development.” (DEIS page 5-12) Adequate water and sewer infrastructure will be important to successfully implement compact development in some communities. However, since the Massachusetts Department of Environmental Protection (DEP) no longer allocates points for wastewater projects based on a community’s Commonwealth Capital (smart growth) score, it does not appear as if wastewater infrastructure funding is currently being targeted at projects in communities committed to smart growth. As a means to address this particular barrier to smart growth, the FEIS could describe whether the Commonwealth (DEP) would change its priority ranking process for the State Revolving Fund in order to support smart growth in the South Coast region (or elsewhere). This is just one example of the kinds of investments and commitments the Commonwealth could make to support compact, smart growth development in the area to be affected by the project. Also, the FEIS should address the extent to which the Commonwealth will commit resources to protecting the Priority Preservation Areas, in addition to establishing a regional transfer of development rights program. Without these kinds of investments in both development and conservation, future growth is more likely to follow Scenario 1 (business as usual), and the region will not reap the environmental benefits of smart growth that are described for Scenario 2 in this DEIS.

Additional detailed comments on the Chapter 5.0 of the DEIS:

Page 5-13. As we noted when we reviewed the Secondary and Cumulative Impacts Technical Report, we do not understand why Scenario 2 includes some No-Build growth, but Scenario 1 does not, at least as described in the DEIS. Confusingly, in the Indirect Effects section on page 5-23 both Scenario 1 and Scenario 2 are described as including baseline plus induced growth. It is not clear which statement is accurate. If, in fact, one scenario includes baseline growth but the other does not, this makes it difficult to compare the two scenarios. This difficulty is illustrated in a comparison of Table 5-2 with Figures 5-9 through 5-11, which do appear to include No-Build growth in both scenarios. For example, under Scenario 2 for the Stoughton alternative, Table 5-2 shows that New Bedford will lose 567 fewer households than No-Build. Since the No-Build projection for New Bedford is that it will lose 1,283 households, this implies that under Scenario 2 New Bedford will lose a total of 716 households (1,283 minus 567). Yet Figure 5-10 (Scenario 2: Stoughton Alternative, Total Growth) indicates that New Bedford will lose 607 households, not 716. We recommend that both scenarios treat No-Build growth in the same manner throughout the document, and discrepancies such as these be reconciled and corrected. If the differences between scenarios (in terms of whether they include No-Build growth) affect the environmental impacts analyses, these will need to be corrected also so that fair comparisons can be made.

Page 5-15. Table 5-2 provides estimates of the expected growth in households for each of the alternatives, including growth in four Rhode Island communities (Tiverton, Portsmouth, Bristol, and Warren) that may be affected by the project. We note, however, that the Rhode Island household growth is not depicted in Figures 5-3 through 5-11 and we recommend that this growth be shown, along with growth in the Massachusetts communities. For Figures 5-6 through 5-11, information on No-Build growth should be available from Rhode Island's Office of Statewide Planning.

Page 5-17. Assumptions for Future Growth Scenario. We had recommended during agency meetings that the analysis of potential environmental impacts that could be attributed to induced growth include stormwater runoff. Runoff from development is a significant contributor to poor water quality in southeastern Massachusetts and elsewhere, and we continue to believe that an estimate of potential impacts from induced development should be made. One approach would be to estimate the amount of impervious surface that will be created by induced development, and use hydrologic data to calculate the annual runoff from these impervious surfaces. We recognize that some of this runoff will be directed to stormwater treatment systems or otherwise absorbed before it reaches waterways, but having an estimate of the maximum potential for stormwater contamination would be useful in the comparison among alternatives.

Page 5-18, first bullet. Here and elsewhere in Chapter 5 we recommend that it be made clear when only direct impacts to wetlands are being discussed, and not the full suite of direct, indirect/secondary, and cumulative impacts. For example, at a minimum we recommend that this first sentence read: "Residential housing development typically results in minor **direct** impacts to wetlands because of local, state, and federal legal protections."

Page 5-20, Table 5-4. Is there a typographical error in the “Loss of Forest Land” category? As shown, the “high” smart growth scenario results in a greater loss of farmland than the “low” scenario, which doesn’t match what is described in the text.

Page 5-23, second paragraph. We recommend either deleting the last sentence (“Thus, certain regulated resources experience improvements, rather than degradations, over time.”) or providing a more complete description. Depending on the kind of wetlands mitigation provided, it can be a long time before mitigation replaces lost values and sometimes mitigation is not successful. In other words, successful wetland mitigation (especially wetland creation) is more complex than this last sentence implies.

Page 5-24. Table 5-5. We note that although the build scenarios (Scenario 1 and 2) reduce the loss of population (households) from Fall River and New Bedford as compared with No-Build, they do not stem the loss completely. Even the smart growth scenario (Scenario 2) still results in the loss of several hundred households from each city.

Page 5-35, Table 5-11. Although the text indicates that the analysis does not include indirect impacts to wetlands, this should be made even clearer in the table. For example, the title of Table 5-11 could read “**Direct** Wetland Impacts (Acres of Loss)” instead of simply “Wetland Impacts (Acres of Loss)”.

Pages 5-42 to 5-43. There is an error in Table 5-15. We believe that the VMT projections for Scenario 2 are incorrect, and should be replaced with projections developed by VHB on 12/11/09. Specifically, under Scenario 2 in Table 5-15, the VMT increase for Attleboro should be 2,829,380, for Stoughton the increase should be 2,826,264, and for Rapid Bus it should be 3,147,190. These revised estimates were developed by VHB on 12/11/09 in response to EPA’s comments on the Secondary and Cumulative Impacts Technical Report. We commented that the VMT reduction factor (from 43 VMT/household/day to 26 VMT/household/day) for Scenario 2 should only be applied to those households living in smart growth areas (PDAs), and not to those living outside PDAs. VHB subsequently revised the estimates, and it is these revised numbers that should be presented in Table 5-15.

Page 5-44. Section 5.3.2.9. Economic Effects, Scenario 1. There appears to be a typographical error in the second sentence. The sentence states that wetland losses are evaluated below, but this section is on economic effects.

Page 5-67. Table 5-23. There appear to be typographical errors in the table, since the text indicates that the changes associated with Scenario 2 (in terms of incremental and percent change land conversion) are negative (meaning less land will be developed), not positive, but the table shows the opposite.

Environmental Justice

The Environmental Justice (EJ) analysis conducted by the Corps for the South Coast Rail DEIS was guided by the requirements of Massachusetts Executive Office of Energy and Environmental Affairs (EEA) Environmental Justice Policy, Executive Order 12898 Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, and U.S. Department of Transportation (DOT) Order 5610.2 Environmental Justice in Minority and Low-Income Populations. These policies direct agencies to identify and address disproportionately high and adverse human health or environmental effects of their activities on minority and low-income communities.

The Council on Environmental Quality's (CEQ) Environmental Justice Guidance Under the National Environmental Policy Act (December 1997) provides 6 guiding principles including 1) considering the composition of the affected area to determine whether minority populations, low-income populations, or Indian tribes are present in the area affected by the proposed action, 2) considering relevant public health data and industry data concerning the potential for multiple or cumulative exposure to human health or environmental hazards in the affected population, to the extent such information is reasonably available, 3) recognizing the interrelated cultural, social, occupational, historical, or economic factors that may amplify the natural and physical environmental effects of the proposed agency action, 4) developing effective public participation strategies, 5) assuring meaningful community representation in the process, and 6) seeking tribal representation in the process in a manner that is consistent with the government-to-government relationship between the United States and tribal governments.

In addition, in the ENF, the Secretary of EOEEA identified several environmental justice requirements for the DEIR including:

- defining and mapping EJ populations in project area,
- describing tangible benefits to EJ communities,
- identifying potential disproportionate impacts on EJ communities and any proposed mitigation, and;
- presenting strategies to enhance public participation in the environmental review process.

EPA believes that the DEIS meets the requirements of these guidance documents, and that the analysis appropriately evaluates the potential for disproportionate adverse impacts to environmental justice populations (as defined by the Commonwealth of Massachusetts EJ policy) – specifically evaluating adverse impacts due to land acquisition (neighborhood disruption/fragmentation, residential displacements, and business/job displacements), increases in noise levels and air pollution and compares these impacts to non-environmental justice neighborhoods. Impacts to EJ populations are expected to be minimal in all of these areas except for noise.

The analysis shows that at a regional level, moderate and severe noise impacts would not be predominately borne by residents of EJ neighborhoods in any of the alternatives. However, at the community level, it shows that in all the rail alternatives, the noise impacts in Fall River would be predominately borne by EJ communities. In addition, the affected community level

analysis shows EJ communities in some of the study area municipalities would be disproportionately affected by noise impacts relative to non-EJ communities in these municipalities (i.e., Canton, Taunton, and Stoughton). However, the DEIS notes that severe impacts will be mitigated and a noise mitigation plan will be developed. Two types of noise mitigation measures will be considered for rail noise abatement: noise barriers and building noise insulation. EPA recommends that the impacted communities be involved with the development of the noise mitigation plan and have an opportunity to participate in decisions regarding the mitigation plans for their neighborhoods. It is not clear whether the mitigation plans will be enforceable. The FEIS should describe how these plans will be enforced and how they plan to address any unforeseen impacts to these communities.

Environmental justice is not only about identifying and addressing adverse impacts of a project on communities but also ensuring that affected communities have access to the benefits of a project. Possible benefits of this project described in the DEIS include increased property values and improved access to jobs, colleges, hospitals, and Boston, as well as the potential for transit-oriented development in the vicinity of the new stations. While all of the alternatives will benefit EJ populations, the amount of benefit will vary depending on the alternative and community. For example, the analysis states that the Attleboro and Stoughton Alternatives would provide the greatest overall benefits to EJ populations; and the rapid bus alternative would provide fewer benefits when compared to rail but would also result in the least overall adverse impacts to EJ populations (primarily from noise).

The DEIS also notes that some of the benefits may come with unintentional consequences. For example, increased property values may have an adverse impact to EJ populations if it results in gentrification. The FEIS should discuss approaches for minimizing gentrification and loss of community cohesion and adoption of these approaches (e.g. affordable housing options) should be an integral part of planning discussions for the project.

In terms of selecting the preferred alternative, EPA recommends that the Corps/MassDOT follow the CEQ's Environmental Justice Guidance Under the National Environmental Policy Act (December 1997) which states "that when the agency has identified a disproportionately high and adverse human health or environmental effect on low-income populations, minority populations, or Indian tribes from either the proposed action or alternatives, the distribution as well as the magnitude of the disproportionate impacts in these communities should be a factor in determining the environmentally preferable alternative. In weighing this factor, the agency should consider the views it has received from the affected communities, and the magnitude of environmental impacts associated with alternatives that have a less disproportionate and adverse effect on low-income populations, minority populations, or Indian tribes." In this case, all of the alternatives under consideration provide benefits to EJ populations and the question that should be addressed by the Corps/MassDOT is whether identified adverse impacts can be adequately addressed.

The DEIS outlines an extensive stakeholder involvement process to date including project flyer distribution to EJ neighborhoods, translation of materials, availability of interpreters at public meetings, use of ethnic newspapers, and community workshops in impacted EJ communities. EPA recommends that this public outreach strategy be continued as the project moves forward.

Public participation will become even more critical as the project moves from planning to implementation/construction. Outreach should especially be targeted to those communities who will be disproportionately impacted by noise.

EPA also supports the continued consultation with Native American tribes to determine if any of the alternatives would have an adverse effect on undocumented cultural resources.

Water Supply Impacts

Based on information presented in the DEIS (see DEIS Table 4.17-30), the Stoughton Electric/Diesel alternative set appears to have the least potential to impact drinking water quality, especially with regard to stormwater discharges to water bodies, Interim Wellhead Protection Areas, and Zone IIs.

Section 4.17 of the DEIS (Water Resources) adequately assesses most potential environmental impacts to affected reservoirs and wellfields, pollutant fate and transport, mitigation practices for spill containment and prevention from the rail alternatives, and provides an exhaustive overview of existing regulations and permit authorities for water resources in the affected towns. We note, however, that the discussion of potential impacts from the Rapid Bus Alternative is incomplete. Apart from cursorily mentioning salt as a stormwater pollutant from roads, impacts from the use of winter deicing chemicals for the Rapid Bus Alternative on existing highways, bus terminals, impervious surfaces and proposed lane additions in Raynham, Bridgewater and Brockton are given scant attention in the DEIS. We recommend that more discussion and data, including existing sodium/chloride concentrations in stormwater, surface water and ground water in affected Zone IIs, be provided for the Rapid Bus Alternative. Table 4.17-27 of the DEIS summarizes the wells, water systems, and Zone II stormwater discharges for the Rapid Bus Alternative. It would be helpful if the FEIS included the following information to better understand the potential magnitude of impacts:

- the existing sodium/chloride concentrations in water supplies, reservoir tributaries, and stormwater discharges;
- what Best Management Practices (BMPs) are proposed for salt application optimization and reduction,
- how salt is stored near Zone II areas;
- whether there are highly sensitive zones that require more attention; and
- if sodium chloride concentrations are increasing over time, and, if so, what remedies are proposed for reductions.
- the current concentrations of stormwater constituents (including sodium and chloride) in public water supplies with Zone Is and IIs penetrated by the Rapid Bus road alternative. These data are available from Massachusetts Department of Environmental Protection (MassDEP) and affected drinking water systems as a result of routine Safe Drinking Water Act monitoring for inorganics, metals and organics. If such concentrations are approaching or exceed federal/state Maximum Contaminant Levels (MCLs), the FEIS should explain the remedies and BMPs proposed to reduce concentrations. EPA believes that understanding existing water quality conditions prior to project construction is necessary to better assess any future environmental impacts.

Stormwater Permitting Requirements

The DEIS correctly identifies the requirement for a National Pollutant Discharge Elimination System (NPDES) permit for stormwater associated with construction activities associated with any of the Build Alternatives. EPA has issued the *NPDES General Permit for Storm Water Discharges From Construction Activities* (“Construction General Permit” or “CGP”), which authorizes stormwater discharges that meet the permit’s eligibility criteria. Where stormwater discharges are proposed into Outstanding Resource Waters (“ORW”), operators must file a WM 08B Notice of Intent with MassDEP prior to seeking CGP authorization from EPA.

For all Rail Alternatives, the DEIS indicates that maintenance and cleaning functions will be performed at proposed layover facilities. Pursuant to 40 CFR 122.26(b)(14), facilities engaging in such activities are considered to be engaging in an industrial activity and require an NPDES permit for stormwater discharges from such facilities. EPA has issued the *Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity* (“MSGP”), which authorizes stormwater discharges that meet the permit’s eligibility criteria. As with the CGP, operators must file a WM 08B Notice of Intent with MADEP prior to seeking MSGP authorization from EPA where discharges are proposed to an ORW.

Both the CGP and MSGP include specific provisions related to the eligibility and control of discharges to impaired water bodies, with or without established Total Maximum Daily Loads (“TMDLs”). Though the DEIS refers to MADEP’s 2006 *Massachusetts Integrated List of Waters* to obtain the impairment status of relevant water bodies, the proponent is reminded that it must reference the most current list (at this time, 2010) of waters available at the time of permitting. If EPA or MADEP determines that certain proposed discharges are not eligible for coverage under the CGP or MSGP, the proponent must obtain an individual NPDES permit for such discharges.

Air Quality

EPA believes the air quality analysis in the DEIS is reasonable and thorough. The inputs and methodology in the analysis are consistent with other air quality analyses prepared for transportation projects in Eastern Massachusetts. The appropriate MOBILE6 emission factor model and CAL3QHC microscale program were used to prepare the regional and microscale air quality analyses. In general, we concur with the air quality summary and conclusions presented in the DEIS. When compared to the No Build scenario, the analysis concludes that none of the build alternatives will result in an increase of volatile organic compounds (VOCs) or nitrogen oxides (NOx) [precursors to ozone], in fact, a reduction of VOC and NOx for the build alternatives are projected in future years. In addition, the microscale analysis demonstrates that the build alternatives will not result in violation of the one-hour or eight-hour national ambient air quality standard for carbon monoxide.

Chapter 2 of the DEIS (page 2-6), incorrectly identifies the eight-hour ozone classification for Eastern Massachusetts as “severe”. The Boston-Lawrence-Worcester (E. Mass), MA eight-hour ozone nonattainment area consisting of ten counties in eastern Massachusetts (Barnstable

County, Bristol County, Dukes County, Essex County, Middlesex County, Nantucket County, Norfolk County, Plymouth County, Suffolk County, and Worcester County) is classified as moderate. See 40 CFR 81.322. This classification should be corrected in the FEIS.

We encourage MassDOT to commit to the construction air quality impact mitigation measures, and emission reduction measures at rail layover facilities which are identified in Section 7.4.6 (pages 7-15 and 7-16) of the DEIS. These commitments should be included in the Corps FEIS and Record of Decision for the project.

We note that the Attleboro diesel locomotive alternative will require all new rolling stock, (purchase of new train sets consisting of locomotive engine, coaches and cab), while both the Stoughton and Whittenton diesel locomotive alternatives would extend existing services and may be able to utilize a number of existing train sets. As the construction period for diesel train alternatives range from four to seven years, new locomotive engine purchases would likely be built to Tier 4 emissions standards that apply to newly-built locomotives starting in year 2015. EPA also encourages, wherever possible, implementation of an accelerated timeline for locomotive rebuilding, thereby providing emission controls earlier than currently required. When rebuilding locomotive engines, EPA encourages re-manufacture to the cleanest emission control practicable at the time.

DEIS Scoring System

Background

The DEIS describes a scoring process (DEIS page 3-121) that was developed to demonstrate the relative performance of the alternatives with respect to specific criteria. The scoring system was applied to determine how well the alternatives met the project purpose, whether they are practicable, and whether they result in positive (beneficial) air quality impacts. The scoring system was also used to compare a range of environmental impacts across alternatives, and ultimately to provide an assessment of the overall performance of each alternative.

General Comments

The Council on Environmental Quality regulations implementing NEPA require the alternatives analysis in all EISs to include the alternative of “no action” (40 CFR 1502.14(d)) to provide a benchmark to enable a comparison of the effects of alternatives (Question 3, CEQ’s Forty Most Asked Questions about CEQ’s NEPA Regulations). In practice, agencies typically have used the no action (also known as the no build) alternative not only to compare alternatives with respect to impacts but also to show how they perform when compared to what would occur if no action were taken. In this case, while the DEIS does include discussion of a no-action alternative (as defined on DEIS page 3-31), the scoring system relied on in the DEIS to draw comparisons and conclusions about which alternatives meet the project purpose, it omits any comparison of the alternatives to the no build condition⁴. Instead, the DEIS scores alternatives based solely on how well they perform as compared to the best performing alternative, and assigns a letter grade (A-

⁴ EPA recommended this comparison in our January 9, 2009 scoping comments on the project and during an Interagency Coordination Group meeting on October 22, 2009.

F) to the relative comparison score. We believe this approach in the scoring system introduces a bias to the process because it masks the fact that an alternative that performs less well than the optimum one still can achieve the purpose of the project. Using a scoring system that compares alternatives' performance to the future no-build baseline would be a more objective presentation of the comparison and would be consistent with the intent of the CEQ regulations. In addition, we believe the assignment of grades with the ultimate use being a comparison of "Counts of Grade "F" is misleading. The use of the system results, for instance, in the grade "F" for the Rapid Bus alternative under both the "VMT" and "Regional Mobility" criteria, even though the Rapid Bus alternative reduces VMTs and results in an increase in regional mobility. The assignment of a failing grade fails to recognize that all of the build alternatives reduce VMTs and increase regional mobility, albeit with the rail alternatives performing better than Rapid Bus. The subsequent tally of "failing" grades to rank alternatives further compounds this problem.

We believe that the Corps should incorporate the no-build alternative into their comparisons of alternatives, consistent with the intent of the CEQ regulations. We also believe the Corps should eliminate the score and grade components of the criteria tables, and instead simply present, for each criterion, the performance information for each of the alternatives. This performance information is already contained in the criteria tables, so our suggestion would be simple to implement and would result in a much clearer and more relevant depiction of information related to the practicability determinations.

ATTACHMENT B

SECTION 404(b)(1) GUIDELINES EVALUATION FOR THE SOUTH COAST RAIL TRANSPORTATION PROJECT

I. INTRODUCTION

The U.S. Environmental Protection Agency New England Region (“the Region”) prepared this document to describe and evaluate the effects of the proposed construction of the South Coast Rail transportation project located in southeast Massachusetts on streams, wetlands, and wetland dependent wildlife. This document utilizes the information presented in the current Clean Water Act § 404 Public Notice (“the PN”); the South Coast Rail Project Draft Environmental Impact Statement (“the DEIS”), which also serves as the substantive application for a CWA section 404 permit; several site visits by EPA Regional staff; and other information collected during the history of the proposed project. The text summarizes the Region’s current position on alternatives in the context of § 230.10(a) of EPA’s Clean Water Act § 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material (40 CFR Part 230) (“the Guidelines”) and analyzes the environmental impacts of the proposed project in the context of §§ 230.10(b) and (c) of the Guidelines. After carefully examining the DEIS, PN, and other information, we do not believe there is sufficient information to determine compliance with the Guidelines. Our rationale follows.

II. ECOLOGICAL RESOURCES

A. Landscape Setting

Descriptions exist of the geologic, topographic, soils, and other landscape features within the project study area. DEIS at sections 4.1, 4.2, and 4.10 - 4.18. As with nearly all of southern New England, southeast Massachusetts has been influenced substantially by human disturbance, including agriculture (especially the cranberry industry), industrial development, and urbanization. Section 4.2.2 of the DEIS provides additional detail describing existing land use conditions within the project study area.

B. Aquatic Resources

Principal wetland systems and water bodies are described in DEIS sections 4.16.2.1 and 4.16.2.2. Major river systems in the project study area are listed in Table 4.17-1. These streams, rivers, and wetland systems that exist in the project study area and alternatives corridors are described more fully in DEIS sections 4.16 - 4.18.

C. Ecological Functions

The river, stream and wetland systems within the South Coast Rail project area provide a broad range of ecological functions for the landscape. Field work by MassDOT's consultants and visits to the project study area by Regional staff documented that, taken in total, the stream and wetland systems provide all 13 functions and values listed in the Corps Highway Methodology-Descriptive Approach.¹ While most of these systems do not provide all 13 functions and values individually, some do. With respect to wildlife expected to be found in the project study area, a review of Tables 4.14-1, 4.14-2, and 4.14-3 shows that greater than 80% of birds, 90% of mammals, and 90% of amphibians and reptiles are wetland dependent, respectively. This information is notable and elevates both the importance of these aquatic resources as well as the significance of expected adverse impacts from the proposed project.

Figures 4.16-2a – 4.16-2q, and 4.16-3a – 4.16-8w of the DEIS provide the standard graphical summary of principal functions and values for each individual wetland area that would be impacted directly by each of the South Coast Rail alternatives. This is helpful visually for an overview of wetland functions and values along the various alternative corridors. On the other hand, the DEIS contains neither a detailed narrative explanation of these ecological functions and values nor an explanation of how these wetland specific ecological functions contribute to the functioning of the broader aquatic systems of which they are a part (i.e., a watershed perspective). Such explanations would provide a more thorough understanding of the importance of these aquatic resources as well as the significance of expected adverse impacts from the proposed project. The FEIS should contain these explanations.

III. DESCRIPTION OF THE PROPOSED ALTERNATIVES

MassDOT and the Corps, in initially surveying the range of possible options, identified 65 potential alternatives for the project by soliciting input from the Massachusetts Bay Transportation Authority, an Interagency Coordinating Group (ICC), the Commuter Rail Task Force, and the public through a series of public meetings. This list was then narrowed down to five alternatives encompassing four routes and three modes for further analysis by MassDOT, and Corps, and the ICC.

In Section 3 of the DEIS, the Corps ultimately evaluated eight different alternatives:

1. No-Build (Enhanced Bus) Alternative
2. Attleboro Electric Alternative
3. Attleboro Diesel Alternative
4. Stoughton Electric Alternative
5. Stoughton Diesel Alternative
6. Whittenton Electric Alternative
7. Whittenton Diesel Alternative

¹ U.S. Army Corps of Engineers. 1993. The Highway Methodology Workbook: Integrating Corps Section 404 Permit Requirements with Highway Planning and Engineering and the NEPA EIS Process. NEDEP-360-1-30. U.S. Army Corps of Engineers, New England District, Concord, MA.

8. Rapid Bus Alternative

A. No-Build (Enhanced Bus) Alternative

The No-Build Alternative would consist of continued investment in the existing regional transportation network with no new rail or bus service provided in Southeastern Massachusetts. Bus schedules would be enhanced based on existing bus service routes to Fall River and New Bedford. There are no proposals to increase Taunton commuter bus service.

This alternative may include a new expanded park-and-ride/bus station near the Route 24/140 highway interchange, near the Route 106/24 park-and-ride lot, or at the Mt. Pleasant park-and-ride lot. Incentives would also be created to enable private commuter bus service operations to acquire a new fleet of fuel efficient and clean emission buses. The DEIS indicates that regardless of the outcome of MassDOT's proposal, the No-Build alternative is expected to be implemented.

B. Attleboro Alternatives (Electric and Diesel)

The Attleboro Alternatives would provide new commuter rail service from New Bedford and Fall River to South Station through Attleboro using the New Bedford Main Line, the Fall River Secondary Line, the Attleboro Secondary Line, a new bypass track and the Northeast Corridor. The Boston-New Bedford route would be 60.4 miles long and the Boston-Fall River route would be 57.9 miles long. Both alternatives would be a new rail service without established stopping patterns and would only stop at major stations.

Both alternatives would require eight new commuter rail stations, major reconstruction at three existing commuter rail stations, and minor work at the existing commuter rail station at Route 128. Construction would also include the creation of a third track along the Northeast Corridor between the proposed Attleboro Bypass and the Readville Interlocking in Boston²; reconstruction of a new two-track railroad on a new right-of-way between the Northeast Corridor and the Attleboro Secondary; and reconstruction of existing tracks from the Attleboro Bypass to Weir Junction as a single track with one siding. Construction, reconstruction, or widening of 44 bridges and 39 railroad at-grade crossings would also be required. Two overnight layover facilities, one on the New Bedford Main Line and one on the Fall River Secondary Line, would be required as well. Additionally, the Attleboro *electric* alternative would involve construction of a traction power system including one main substation in Taunton, one switching station in Attleboro, and six paralleling stations (one in Norton, one in Berkley, two in Freetown, one in New Bedford, and one in Fall River).

C. Stoughton Alternatives (Electric and Diesel)

The Stoughton Alternatives would provide commuter rail service to from New Bedford and Fall

² A fourth track option was also evaluated to attempt to address anticipated service deficiencies identified with the three track alternatives.

River to South Station through the Northeast Corridor, the New Bedford Main Line, the Fall River Secondary Line, the Attleboro Secondary to Weir Junction in Taunton and an extension of the existing Stoughton Branch to Taunton. They would extend existing commuter rail services along these corridors with already established stopping patterns. The Boston-New Bedford route would be 54.9 miles long and the Boston-Fall River route would be 52.4 miles long.

Construction for these alternatives would include reconstruction of existing tracks of the Stoughton Line from Canton Junction to Stoughton as a double track; construction of new tracks on existing, abandoned right-of-ways from Stoughton to Winter Street in Taunton as one to two tracks; and reconstruction of existing tracks from Winter Street in Taunton to Weir Junction as a single track. These alternatives, as well as the Whittenton alternative discussed below, include an 8500 foot long elevated trestle that would carry the trains through a portion of Hockomock Swamp. Construction, reconstruction, or widening of 45 bridges and 46 railroad at-grade crossings would be required, as well as construction of ten new commuter rail stations and major reconstruction at two existing commuter rail stations. They would also require two overnight layover facilities, one on the New Bedford Main Line and one on the Fall River Secondary Line. Separately, the electric alternative would require construction of a traction power system including two main electric substations (one in Easton and one in New Bedford), two switching stations (one in Canton and one in Berkley), and six paralleling stations (one in Easton, one in Taunton, two in Freetown, one in New Bedford, and one in Fall River).

D. Whittenton Alternatives (Electric and Diesel)

The corridor for the Whittenton Alternatives is a variation of the corridor for the Stoughton Alternatives. The corridor would follow the same route as the Stoughton Alternatives but would swing northwest around Taunton and use the inactive Whittenton Branch right-of-way instead of continuing north in a straight line towards Taunton. As a consequence, the Whittenton Alternatives would avoid traversing the Pine Swamp, which the Stoughton Alternatives directly intersect. This alternative would also extend existing commuter rail service with established stopping patterns. The Boston-New Bedford route would be 56.5 miles long and the Boston-Fall River route would be 54.0 miles long.

For this route, the following would need to be constructed: reconstruction of existing tracks of the Stoughton Line from Canton Junction to Stoughton as a double track; construction of new tracks on an existing, abandoned rail right-of-way from Stoughton to Raynham Junction as one to two tracks; construction of new tracks on an existing rail right-of-way from Route 138 in Raynham to Whittenton Junction as a single track; and reconstruction of existing tracks on the Attleboro Secondary from Whittenton Junction to Weir Junction as a single track. Construction, reconstruction, or widening of 42 bridges and 53 railroad at-grade crossings is also required. Construction for commuter rail stations, layover facilities, and the traction power system (for the electric alternative) would be the same as for the Stoughton alternatives.

E. Rapid Bus Alternative

The Rapid Bus Alternative would provide rapid express bus service from New Bedford, Fall River, and Taunton to South Station using a proposed dedicated, primarily reversible bus lane to be built along Routes 24, I-93/128, and 140. North of I-495, buses would use a combination of new zipper bus lanes, new reversible bus lanes, two-way bus lanes, existing zipper HOV lanes, and existing HOV lanes, along with a short section in mixed traffic. South of the I-495 interchange in Raynham, buses would travel in the general purpose lanes with mixed traffic. The Boston-New Bedford route would be 56.4 miles long and the Boston-Fall River route would be 51.5 miles long.

The Alternative would be a new transportation service with four branches. It would create six new rapid bus stations and major expansion of the bus terminal at South Station. Additionally, the Rapid Bus Alternative would provide eight peak period trips between each terminal station and Boston's South Station. Inbound service would originate from New Bedford, Fall River, downtown Taunton, and Taunton Silver City Galleria. Each branch would have a maximum of two stations in the South Coast region.

The Alternative would require improvements to highway infrastructure along Route 24 (construction of a third lane from Route 140 to I-495; widening of Route 24 to accommodate movable barriers; and construction of a zipper bus lane from I-495 to Harrison Boulevard); and Route 128/I-93 (construction of a reversible bus lane from Harrison Boulevard on Route 24 to Logan Express Lot; and construction of a two-lane bus roadway from Logan Express Lot to existing HOV zipper lane on the Southeast Expressway). Twenty bridges and 11 highway interchanges would also have to be constructed, reconstructed, or widened.

IV. ALTERNATIVES ANALYSIS

A. Analysis of Alternatives

EPA's § 404(b)(1) Guidelines prohibit a discharge of dredged or fill material if there "is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences." 40 C.F.R. § 230.10(a). This fundamental requirement of the § 404 program is often expressed as the regulatory standard that a permit may only be issued for the "least environmentally damaging practicable alternative" or LEDPA. Where (as here) the basic project purpose is not water dependent, and it involves fill in wetlands, practicable and less environmentally damaging alternatives are presumed to exist unless clearly demonstrated otherwise by the applicant. The burden to demonstrate compliance with the alternatives test and rebut the presumptions rests with the applicant, in this case MassDOT. Furthermore, the level of documentation needed to demonstrate compliance with the Guidelines – including the alternatives test – is commensurate with the severity of the impact. See 40 C.F.R. § 230.6 and the introductory note to § 230.10.³

³ See also the August 23, 1993 Memorandum to the Field issued by EPA and the Corps of Engineers entitled

The Corps has defined the basic project purpose in this case as follows: “to more fully meet the existing and future demand for public transportation between Fall River/New Bedford and Boston, Massachusetts.” DEIS at 1-1. The Region participated with the Corps in developing this definition of basic project purpose, and we agree that it represents an appropriate characterization of the project purpose to ensure that a reasonable range of alternatives is examined.

The Corps characterized the “basic” project purpose as being relevant only to whether a project is water dependent or not. *Id.* The Corps then identified an “overall” project purpose, to be used to evaluate whether there are less environmentally damaging practicable alternatives, as: “to more fully meet the existing and future demand for public transportation between Fall River/New Bedford and Boston, Massachusetts to enhance regional mobility.” *Id.* at 1-2. The Region did not learn of the Corps’ decision to develop a separate “overall” project purpose until we received the DEIS, and we do not agree with the Corps’ establishment of a different project purpose definition to be used in the alternatives analysis. The Region and the Corps’ New England District’s longstanding interpretation and practice has been to define the “basic” project purpose both for determining whether a project is water dependent and for determining whether alternatives are practicable (in light of the basic project purpose).

The Corps relies on the following language in 40 C.F.R. § 230.10(a)(2) to support its approach: “An alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of *overall project purposes*.” (emphasis added). However, the very next sentence states that “...an area not presently owned by the applicant which could be reasonably be obtained, managed, or utilized *in order to fulfill the basic purpose of the proposed activity* may be considered.” (emphasis added). Clearly the terms “overall” and “basic” are intended to be used interchangeably. Indeed, the preamble to the Guidelines states, in the discussion of alternatives (as distinguished from the water dependency discussion): “We consider it implicit that, to be practicable, an alternative must be capable of achieving the basic purpose of the proposed activity.” Guidelines Preamble, “Alternatives,” 45 Fed. Reg. 85335, 85339 (December 24, 1980).

The 1993 Highway Methodology Workbook, which the Region and the New England District have utilized for almost twenty years, also treats the two terms interchangeably. For example, on page 5 the Workbook states “The Corps will define this overall/basic project purpose broadly to ensure that a reasonable range of alternatives will be examined,” and “This [NEPA] ‘purpose and need’ differs from the Corps section 404(b)(1) Guidelines statement of ‘overall/basic project purpose.’” In addition, the Workbook repeatedly displays a diagram of the permit process which refers only to the Corps’ identification of the basic project purpose and makes no mention of the establishment of a separate overall project purpose. The Region’s view is consistent with the Corps’ guidance issued in the Hartz Mountain Development Corporation Permit Elevation, which addresses the issue of

“Appropriate Level of Analysis Required for Evaluating Compliance with the § 404(b)(1) Guidelines Alternatives Requirements.” <http://water.epa.gov/lawsregs/guidance/wetlands/flexible.cfm>

defining the basic project purpose in the context of the alternatives analysis, not water dependency:

The Guidelines alternatives analysis must use the "basic project purpose," which cannot be defined narrowly by the applicant to preclude the existence of practicable alternatives. On the other hand, the Corps has some discretion in defining the "basic project purpose" for each Section 404 permit application in a manner which seems reasonable and equitable for that particular case.

HQUSACE Review Findings, Hartz Mountain Permit Elevation, 1989, at 4.

The Region's comments on the practicability of alternatives are therefore framed in terms of satisfying the basic project purpose. As discussed further below, however, even if the Corps' "overall" project purpose formulation were used, we do not believe it would make a difference to our analysis in this case.

The Corps does not identify the LEDPA in the DEIS, but MassDOT does identify the Stoughton family of alternatives as its preferred corridor.⁴ DEIR at P-8. Based on the information provided in the DEIS, the Region believes that the only alternatives shown to be impracticable are the Attleboro Alternatives, for reasons discussed below. While the remaining Stoughton, Whittenton, and Rapid Bus Alternatives differ in the extent to which each satisfies the basic project purpose, none has been clearly shown to be impracticable. As discussed in Section V. below, the Region believes that additional information is needed to determine which is the least environmentally damaging to the aquatic environment and, hence, the LEDPA.

1. Practicability of the Alternatives

Before turning to an analysis of the alternatives, we would like to outline our concerns about the process used by the Corps to score the alternatives. The DEIS presents the differences among all of the various alternatives (except for the no-build alternative), by comparing their relative performances under several specific criteria. The best performing alternative under any given criterion is the baseline against which the other alternatives are compared and assigned a relative score, which is then expressed as a letter grade (A through F). While this approach provides a simple way to portray the general and relative performances of each alternative with respect to the evaluation criteria, it has no direct bearing on the question of whether any particular alternative is practicable under 40 C.F.R. § 230.10(a) or can meet the basic project purpose. We believe the approach introduces a bias to the evaluation because it obscures the fact that an alternative that performs less well than the optimum one still can achieve the purpose of the project. The approach may inform the applicant as to which build alternatives are "best" or "better" from its perspective,

⁴ MassDOT has not stated a preference between the diesel and electric variations of the Stoughton alternative.

but it does not generate a "score" that addresses whether or not an alternative is practicable. As a result, from the standpoint of the 404 review process, it creates confusion by obscuring the determinative fact that an alternative that performs less well than the optimum one still can achieve the purpose of the project. An alternative that is "practicable" under § 230.10(a) cannot be rejected simply because it does not perform as well as other alternatives, including the preferred alternative. Therefore, in reviewing the factual information presented in the DEIS's alternatives screening discussion, the Region has considered each alternative's performance relative to whether it can meet the basic project purpose in light of costs, logistics, and existing technology, rather than whether it can perform best or better than other alternatives. Furthermore, we strongly recommend that in the FEIS, the Corps should eliminate the score and grade components of the criteria tables, and instead simply present, for each criterion, the performance information for each of the alternatives. This performance information is already contained in the criteria tables, so this change would be simple to implement and would result in a much clearer and more relevant depiction of information related to the practicability determinations.

a. The Stoughton, Whittenton, and Rapid Bus Alternatives

As noted above, in order to be practicable, an alternative must be available and capable of being done. The DEIS does not identify any issues related to the availability of the Stoughton, Whittenton, and Rapid Bus Alternatives. The properties on which the alternatives would be built are all available by virtue of being either owned or obtainable by the Commonwealth.

"Capable of being done" takes into consideration cost, existing technology, and logistics. The preamble to the Guidelines provides clarification on how cost is to be considered in the determination of practicability: "*Our intent is to consider those alternatives which are reasonable in terms of the overall scope/cost of the proposed project.*" Guidelines Preamble, "Alternatives", 45 Fed. Reg. 85335, 85339 (December 24, 1980). The preamble to the Guidelines also states that "[i]f an alleged alternative is unreasonably expensive to the applicant, the alternative is not 'practicable.'" *Id.* at 85343. The EPA and Corps 1993 Memorandum to the Field (cited in footnote 2 above) emphasizes that "... it is not a particular applicant's financial standing that is the primary consideration for determining practicability, but rather characteristics of the project and what constitutes a reasonable expense for these projects that are most relevant to practicability determinations."

The applicant's preferred alternatives -- Stoughton electric and diesel -- would cost \$1.88 billion and \$1.48 billion, respectively. DEIS at 1-8. We assume, for purposes of this comment letter, that the applicant has determined that the costs associated with the Stoughton alternatives are practicable; otherwise it would not have selected Stoughton to be its preferred alternative. The Whittenton electric and diesel alternatives, at \$1.81 billion and \$1.41 billion, respectively, would be slightly less expensive. *Id.* The Rapid Bus alternative would be the least expensive at \$812 million. *Id.* Thus, none of these alternatives should be rejected as impracticable on the basis of cost.

The DEIS does not identify either technological or logistical issues that would preclude any of these

five alternatives from being considered practicable. Therefore, the key question is whether any of them would fail to satisfy the basic project purpose.

Considering the various evaluation criteria described in chapter 3 of the DEIS, the Region concludes that all five of the alternatives would satisfy the basic project purpose, i.e., would "more fully meet the existing and future demand for public transportation between Fall River/New Bedford and Boston, Massachusetts." ⁵ All of them would improve the quality of transit services over existing conditions; meet a substantial portion of ridership demand (ranging from 44% to 63%); and provide a "comparable or competitive travel time and improved reliability" compared to existing peak commuting conditions. *Id.* at 3-123, 3-124. In addition, while not required to satisfy the basic project purpose, all of the alternatives would provide a benefit of reduced vehicle miles traveled.

The DEIS identifies additional "sub-criteria" related to the practicability of the alternatives, using the same scoring approach described above. These sub-criteria are the cost per rider, construction schedule, and on-time performance. None of the information presented related to these criteria demonstrates that any of the five alternatives (Stoughton, Whittenton, and Rapid Bus), would fail to meet the basic project purpose.

The DEIS states that the Rapid Bus Alternative would be the least cost-effective alternative, based on the balance of capital and maintenance costs of the service to the benefit of the service (expressed as the number of riders projected to use the system). *Id.* at 3-130. We have several comments about this criterion. First, the DEIS states that the cost/benefit metric, expressed as cost per rider, includes the cost of environmental mitigation. However, an environmental mitigation plan has not yet been developed, and in the Region's opinion the cost of mitigating the impacts to the aquatic environment from the rail alternatives would be substantially higher than the cost associated with mitigating the impacts to the aquatic environment from the Rapid Bus Alternative (see discussion in Section VI, below). Therefore, we believe that the cost per rider figures portrayed in Table 3.3-11 (DEIS at 3-131) are incomplete and inaccurate. We expect that including the likely mitigation costs would bring the cost per rider figures closer together. In addition, even if there is a substantial disparity in cost per rider, that does not render the Rapid Bus Alternative impracticable or unable to meet the basic project purpose. From an overall cost standpoint (which is how practicability is evaluated), it is the least expensive alternative, and it would, notwithstanding the cost per rider, meet a substantial portion of ridership demand (44%), thus "more fully meet[ing] existing and future demand for public transportation...." Furthermore, we note that the cost per rider estimate for Rapid Bus was approximately \$32 in a Cost Effectiveness Comparison distributed at an Interagency Coordinating Group meeting in 2009, as compared with the nearly \$100 estimate included in the DEIS. The FEIS should explain why the cost per rider estimate for Rapid Bus increased by over 3-fold between these two documents, as compared with the other alternatives for which the cost estimate changed little, if any.

⁵ We do not necessarily agree that every criterion evaluated in the DEIS is essential to the determination of whether an alternative would be practicable and satisfy the basic project purpose. For the purpose of this comment letter, we have nonetheless considered the information provided for each criterion.

The DEIS also evaluates whether the alternatives would improve regional mobility. As discussed above, the Corps identified the “overall” project purpose to be “to more fully meet the existing and future demand for public transportation between Fall River/New Bedford and Boston, Massachusetts to enhance regional mobility.” This is the same as the basic project purpose with the addition of the clause “to enhance regional mobility.” While the Region does not agree with the Corps’ distinction between “basic project purpose” and “overall project purpose” from the standpoint of the alternatives analysis, in this particular case we do not believe there is a meaningful difference between the two. That is, more fully meeting the demand for public transportation between Fall River/New Bedford and Boston will, by definition, enhance regional mobility.

In evaluating regional mobility, the DEIS considered both the connectivity between Fall River/ New Bedford and Boston, and interregional connectivity. All of the alternatives clearly enhance mobility between Fall River /New Bedford and Boston.

The Region believes that the goal of improving interregional connectivity, similar to MassDOT’s goal of supporting smart growth planning and development strategies in the affected communities, is properly viewed as a desirable benefit of the project rather than a fundamental aspect of the basic project purpose (or even the “overall” project purpose as described by the Corps). In other words, the absence of improved interregional mobility would not be a proper basis for concluding that an alternative fails to meet the basic project purpose. Nonetheless, we note that all of the alternatives do improve interregional connectivity to some extent, although the rail alternatives would be much more effective in this regard than the Rapid Bus Alternative. We also note that MassDOT envisions a feeder bus service to train stations “to connect the urbanized communities in the study area to the South Coast stations.” DEIS at 1-17. This feeder bus network would provide enhanced bus service from the communities to the train stations to provide an alternative to driving to stations. *Id.* The FEIS should evaluate whether an expansion of the local bus network as an adjunct to the Rapid Bus Alternative would further enhance interregional connectivity.

We recognize that the Rapid Bus Alternative does not perform as well as the rail alternatives for some criteria. We also believe that there may be additional steps that could be taken that would result in better performance of this alternative. We recommend that the FEIS evaluate the following issues related to the Rapid Bus Alternative:

- * Performance: We note that travel speeds for the Rapid Bus service are based on the posted speed of the adjacent travel lanes. The FEIS should discuss areas like Route 24 where the bus will operate in its own designated lane and whether the bus route can be designed to be operated safely at higher speeds to reduce overall travel times for this alternative.

- * Congestion: The FEIS should describe solutions that could be implemented to address congestion that the bus service will face as it enters the mixed traffic portion of its route along the Southeast Expressway. Improvements to address congestion issues will benefit the Rapid Bus Alternative as well as the general commuting public utilizing shared portions of the proposed travel corridor.

* **Ridership:** Ridership on the Rapid Bus Alternative suffers due to a number of issues described in a May 2010 Central Transportation Planning Staff memo in DEIS Appendix 4.1-J (page 10). That memo reads in part, "There are five major factors contributing to why the rapid bus alternatives produces lower performance measures, than the commuter rail alternatives. These factors are:

- Run times are longer to South Station, with the exception of bus only versus Whittenton Diesel, in which the rail alternative is three minutes slower than the Rapid Bus Alternative.
- The commuter rail alternatives serve several more stations
- Lack of connectivity with the Orange Line Station
- Transfer times between the rapid bus and the rapid transit lines are a little longer than with the commuter rail lines
- Fewer new stations being provided in areas of proposed growth
- Lack of intra-regional connectivity / no intermediate stations

Together these factors produce between 52% and 65% of the daily boardings and 35% to 50% of the auto diversions that, for instance, the Stoughton Diesel rail alternatives produce."

The FEIS should make it clear whether any one change, or combination of changes, to the Rapid Bus Alternative would result in a meaningful change in ridership. In particular, the FEIS should explore what it would take to provide a connection between the proposed Rapid Bus service and the MBTA's Orange Line and what effect additional stations in areas of proposed growth could have on ridership.

* **Rapid Bus Equipment:** The DEIS at Page 3-110 indicates that buses "could" feature amenities. Based upon comments made by MassDOT representatives and its consultants throughout the process leading up to the DEIS, it has been our understanding that the buses "would" be "state of the art" with comfortable seating and wifi, etc., to attract ridership and give high quality service. We believe that the FEIS should be revised to reflect previous verbal commitments by the Commonwealth to provide this level of service for the Rapid Bus.

b. The Attleboro Alternatives

EPA is persuaded, based on the information in the DEIS, that the Attleboro Alternatives would fail to meet the basic project purpose due to an interlocking set of confounding performance/logistical issues which characterize this alignment alone.

As background, transportation modeling underlying the DEIS indicates that the limiting condition for all rail scenarios is the terminal throat interlocking capacity and terminal approach capacity at South Station. DEIS, Appendix 3.2-A (Systra Consulting, Inc., A Draft Network Simulation Analysis, August 2009) at 14. When capacity is reached and exceeded by train volume, congestion

in the terminal throat causes late arrivals. These in turn further exacerbate the problem of expeditiously clearing or loading platform tracks. The Northeast Corridor (“NEC”) is another potential capacity bottleneck. DEIS at 3-133; Appendix 3.2-B (Systra Consulting, Inc., Technical Memorandum, Analysis of South Coast Rail Attleboro Alternative PM Peak Period, Using Back Bay as Northerly Terminal (Tower I and South Station Effects Removed), October 29, 2009). The NEC is an active rail line running between New York and South Station in Boston. From Attleboro to Boston, the corridor experiences heavy use, including Amtrak Regional and Acela service, MBTA commuter rail service, and freight rail service. The Attleboro Alternatives would provide commuter rail service to South Station using the Northeast Corridor, proposed Attleboro Bypass, Attleboro Secondary, New Bedford Main Line and Fall River Secondary.

The Attleboro Alternatives suffer from the combination of severe logistical issues. First, they would cause overwhelming congestion in the Tower 1 terminal interlocking throat at South Station. This issue is distinct for the Attleboro Alternatives, because they would entail the introduction of new trains to the system, rather than extensions of existing trains as under the Stoughton and Whittenton Alternatives. As a result, they fail, under any modeled scenario (even at substantially reduced train volumes), to achieve the MBTA on-time standard in the morning peak and fare even worse in the evening peak. The overall on-time performance for the diesel alternative would be less than 50%, and the electric alternative would be on time only slightly more than 50%. DEIS at 3-132. Additionally, the Attleboro Alternatives would cause or compound on-time performance issues throughout the regional south side transportation system, including Worcester, Franklin, Needham, and Providence Lines.

To determine whether the performance of the Attleboro Alternatives could be improved independent of the South Station capacity issue, the DEIS evaluated a modeled scenario that effectively removed the South Station constraint by terminating rail service at Back Bay Station. This scenario revealed that the NEC by itself acts as a bottleneck with respect to the Attleboro Alternatives. Irrespective of South Station constraints, the NEC north of the Readville Station lacks adequate capacity to support increased train volumes associated with the Attleboro Alternatives. An Attleboro-to-Back Bay scenario would still operate with unacceptable on-time performance, while negatively impacting the on-time performance of four other south side commuter rail lines. For example, on time performance for AM peak period trains for the electric Attleboro alternative would be 84.6%—meaning that that 15.4% of the northbound commuter rail trains serving the Needham, Franklin, Providence and Stoughton lines would arrive late every morning—and 64.1% for the PM peak. DEIS, Appendix 3.2-B, Memorandum of MassDOT to Army Corps on South Station Planning and South Coast Rail (May 5, 2010), at 6. While this is an improvement over the Attleboro-to-South Station alternatives, it falls below the MBTA service policy and is well short of the performance of the No-Build scenario. DEIS, Appendix 3.2-B (Systra Consulting, Inc., Technical Memorandum, Analysis of South Coast Rail Attleboro Alternative PM Peak Period, Using Back Bay as Northerly Terminal (Tower I and South Station Effects Removed), October 29, 2009), at 3. Thus, the DEIS indicates that even after assuming away the South Station choke point, the Attleboro Alternatives

still result in major cascading problems on the NEC.⁶

To break the NEC bottleneck and ensure that the Attleboro Alternatives would have an acceptable on-time performance, the DEIS concluded that a fourth track would need to be constructed alongside the NEC. The additional fourth track would begin near Readville Station; extend through Forest Hills Station and Ruggles Station/Massachusetts Avenue; and terminate at Back Bay Station. As explained by the DEIS, this potential fix would itself raise an array of issues sufficiently significant and complex to render it logistically impracticable. It is estimated that it would take between 10 to 12 years to construct the fourth track, with a cost of an additional \$2.48 billion. Among other things, the project would require placing the Orange Line in an approximately 2-mile tunnel from Ruggles Station through Back Bay (with the 1.4-mile stretch from Ruggles Station to Massachusetts Avenue requiring new construction); rehab and replacement of almost one mile of existing subway tunnel to accommodate commuter rail trains; shuttle service, at an estimated cost of \$281,000,000, to continue servicing the riders of the Orange Line during construction of the connections to the tunnel; major renovation (defined as reconstruction of headhouses, vertical circulation, and platforms) of six stations; acquisition of nine residential, commercial, or state properties; and significant property impacts due to construction or operation of the fourth track, including to Southwest Corridor Park, a 4.7 mile, 52-acre linear park stretching from Forest Hills Station to Back Bay Station that is owned and maintained by the Massachusetts Department of Conservation and Recreation. Permanent impacts to Southwest Corridor Park would result from the loss of 2.85 acres of parkland, and temporary impacts would include the loss of 8.54 acres of parkland throughout construction.

The Region believes that the DEIS demonstrates that the Attleboro Alternatives would not be practicable alternatives to meet the basic project purpose because they would offer very untimely service even at comparatively infrequent intervals, combined with the fact that they are predicted to compromise, rather than enhance, the existing public transportation infrastructure. Moreover, the only way to remedy these deficiencies is to construct a fourth track, which itself has serious flaws that render it impracticable, including an additional cost that would more than double the overall cost to greater than \$4 billion; a significantly longer (4-5 years vs. 10-12 years) construction schedule; lengthy and substantial disruptions to the existing Orange Line commuter services and an important inner city park that runs through environmental justice communities; and a wide-ranging, complex subsurface construction project (with all its attendant uncertainties) in the center of Boston.⁷ For all of these reasons, EPA believes it is reasonable to dismiss the Attleboro Alternatives from further consideration.

⁶ The Attleboro Alternatives would have a greater impact on the Northeast Corridor than the other alternatives for two main reasons. First, they would use a longer segment of the NEC corridor (29 miles for the Attleboro Alternative compared to 15 miles for the Stoughton Alternative and Whittenton variant). Second, they would entail new trains, not extensions of existing trains as under the Stoughton Alternatives and Whittenton variants, thereby requiring new operating slots on 29 miles of the already congested NEC.

⁷ We also note that the Federal Rail Administration has indicated to the Corps that it considers the fourth track alternative to be infeasible. *Id.* at 1-24.

c. Conclusion

In conclusion, the Region believes that, based on current information in the DEIS, the Stoughton, Whittenton, and Rapid Bus Alternatives are all practicable and would meet the basic project purpose. We also believe that further evaluation of issues associated with the Rapid Bus Alternative should be conducted to determine the extent to which there could be improvements in that alternative's overall performance. Finally, we agree that the Attleboro Alternatives are not practicable alternatives and need not be considered further.

V. ADVERSE ENVIRONMENTAL IMPACTS

According to the DEIS, the construction of the Rapid Bus and Rail Alternatives would have substantial adverse impacts to aquatic resources and wetland dependent wildlife. See DEIS sections 4.16.3.1 – 4.16.3.5.

DEIS section 4.16.3.2 describes the methodology used to evaluate direct adverse impacts and explains that “[e]ach alternative corridor was assessed for the presence of wetland resources within and adjacent to the right-of-way, and the impacts associated with them. For purposes of this evaluation, wetlands within 100 feet of the right-of-way are considered to be adjacent.” In footnote 1 for Table 4.16-38 on page 4.16-56, the DEIS further explains that the 100 foot distance was measured from the centerline of each corridor. The Region believes that the 100 feet should have been measured from the edge of clearing for the corridor right-of-way for a more accurate inventory of aquatic resources and a better evaluation of adverse impacts.⁸

With respect to vernal pools, on page 4.14-16, the DEIS states that, “[p]otential vernal pools do not receive protection under the Massachusetts Wetland Protection Act Regulations, *or under any other state or federal wetlands protection laws*” (emphasis added). This statement is inaccurate, as pools that do not meet state certification criteria may still be subject to federal jurisdiction and regulated under the CWA. Also, it appears that for the purposes of the alternatives analysis and impact evaluation, only those vernal pools within 100 feet of the centerline for an alternative were evaluated. Although the Region recognizes that time constraints and resource limitations make it challenging, it should be recognized that in order to properly assess the impacts of each alternative upon vernal pool resources, all pools (whether certified or potential) within at least 300 feet of the limit of disturbance (not the centerline) should be identified and evaluated.⁹ Existing literature, especially Calhoun and deMaynadier (2008) and Klemens and Calhoun (2002)¹⁰, suggest that

⁸ The Region made this point at a meeting of the Wetlands Working Group. See meeting summary of April 16, 2009.

⁹ This wider zone for identification and evaluation of vernal pool impacts would only apply to portions of the alternatives corridors that are not currently bordered by development or other intensive land uses.

¹⁰ Calhoun, A.J.K. and P.G. deMaynadier (editors). 2008. Science and Conservation of Vernal Pools in Northeastern North America. CRC Press, Boca Raton, FL.

Calhoun, A.J.K. and M.W. Klemens. 2002. Best development practices: conserving pool-breeding amphibians in

distances up to 750 feet may be relevant in some landscapes. For the situation here, 300 feet (see footnote 6) is clearly reasonable.¹¹ Field work in 2008 and 2009 identified several pools which had not previously been identified, and certified several pools previously classified as potential using state guidelines. It would be helpful for the FEIS to include a description of the methodology that was used for locating and documenting vernal pools in the field in order to better understand the possibility that additional pools may have been missed.

Sections 4.16.3.3 – 4.16.3.5 present quantifications of impacts to aquatic resources according to both state and federal laws. The quantifications are confusing. Except for the explanation on page 4.16-61 that equates the Commonwealth's bordering vegetated wetlands category with wetlands under Clean Water Act section 404, little else is clear. For instance, in Table 4.16-57, it is unclear if the Commonwealth's category of bordering land subject to flooding (BLSF) also would be jurisdictional, either in whole or in part, under CWA section 404. The FEIS needs to clearly present impact acreage and characterizations separately according to Massachusetts law, then for the federal Clean Water Act.

As explained above under Section IV, the Region believes that the information describing the logistical challenges for constructing and operating the Attleboro Alternatives (electric and diesel) renders them impracticable. Therefore, we do not address adverse impacts for the Attleboro Alternatives, concentrating instead on the Rapid Bus, Whittenton, and Stoughton Alternatives.

A. Water Quality Impacts (Section 230.10(b))

The DEIS, particularly Section 4.17 (Water Resources), presents an adequate evaluation of water quality impacts that could result from construction and operation of the Rapid Bus, Stoughton and Whittenton Alternatives. The discussion and conclusions are sound. However, the Region recommends that MassDOT confirm the classifications identified for the water bodies described in section 4.17.2.2 with the Massachusetts Department of Environmental Protection ("MassDEP"). For example, we believe that MassDEP considers the Assonet River to be Class SA, not Class B. Water quality classifications can be a confusing area because some water bodies change names as they flow through different towns. Though this will likely not change the conclusions drawn on the impacts to water resources, addressing this point in the FEIS would ensure an accurate assessment of water quality impacts.

B. Significance of Impacts (Section 230.10(c))

1. Direct Impacts

a. Rapid Bus

residential and commercial developments in the northeastern U.S. MCA Technical Paper No. 5. Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, NY.

¹¹ See footnote 8.

As shown in Table 4.16-57 of the DEIS (page 4.16-97), the Rapid Bus Alternative would result in approximately 21.5 acres of wetlands being directly filled. In addition, approximately 2.1 acres of vernal pools would be filled, bringing the total acreage for direct filling to wetlands and other waters of the U.S. to approximately 23.6 acres. This alternative would require modifications to 13 existing stream crossings. In addition to permanent impacts, there would be approximately 8.7 acres of temporary direct impacts to wetlands, 1.4 acres of temporary direct impact to vernal pools, and temporary alteration of 1,120 linear feet of "bank."¹² The filling would result from numerous, mostly small fills along both sides of the widened and improved roadways. A few larger fills would occur within the medians of Interstate 93 and State Route 24, and within the confines of existing interchanges along State Route 24.

While the acreage for both wetlands filled and total waters filled would be greatest under this alternative, the Region believes that the severity of the impact upon the affected wetlands and waters would be less than that associated with the Stoughton and Whittenton alternatives. The existing roadways that would be widened and upgraded are heavily used roadways along mostly developed corridors where the adjoining wetlands and waters are, in numerous locations, already degraded. The small, incremental filling of wetlands and other waters along those existing roadways that would occur at numerous locations would have mostly minor to moderate adverse impacts to those aquatic resources. Some water quality maintenance functions would be affected, as would small amounts of wildlife habitat. As described in section 4.15.3.3, the Rapid Bus Alternative would have the fewest adverse impacts upon rare wetland dependent wildlife species. Individually and cumulatively, the Region would not be seriously concerned about these impacts. Still, these adverse impacts would require some degree of compensatory mitigation to address their harmful effects.

b. Stoughton and Whittenton

As shown in Table 4.16-57 of the DEIS (page 4.16-97), the Stoughton Alternative (diesel or electric) would fill approximately 11.9 acres of wetlands and 1.7 acres of Outstanding Resource Waters, for a total of 13.6 acres of direct wetland fill. This total does not include an uncalculated amount of fill in wetlands identified as "Other Federal" but not quantified (see Tables 4.16-3 to 4.16-7 and 4.16-18 to 4.16-22). Approximately 68% (8.1 acres) of the impacts to wetlands would occur to forested wetlands. In addition to the permanent impacts there would be 12.6 acres of temporary direct impact to wetlands and 2.6 acres of temporary direct impact to vernal pools. There are 132 stream crossings (68 in the Southern Triangle); 34 of the affected streams are perennial. It is unclear whether impacts or modifications would occur to all of these crossings, as the DEIS states that exact impacts will be calculated during the final design process once a LEDPA is determined. This alternative also would alter approximately 3,480 linear feet of "bank, plus an additional 1,216 linear feet of temporary impacts to bank." *Id.*

¹² As explained more generally immediately above, it is unclear what portion of this figure represents areas that would come under the jurisdiction of CWA section 404, or whether this portion is represented by another category of resource impact. Again, the FEIS needs to explicitly and separately clarify jurisdictional waters of the U.S.

As shown in Table 4.16-57 of the DEIS (page 4.16-97), the Whittenton Alternative (diesel or electric) would fill approximately 10.3 acres of wetlands and about 1 acre of Outstanding Resource Waters, for a total of approximately 11.3 acres of direct wetland fill. This total does not include an uncalculated amount of fill in wetlands identified as “Other Federal” but not quantified (see Tables 4.16-3 to 4.16-7). Approximately 66% (6.9 acres) of direct fill would occur in forested wetlands. In addition to the permanent impacts there would be 10.4 acres of temporary direct impact to wetlands and 1.3 acres of temporary direct impact to vernal pools. The number of stream crossings is unspecified, but there would be at least 68 within the Southern Triangle. This alternative also would alter the same approximately 3,480 linear feet of bank, plus 1,216 feet of temporary bank impact as the Stoughton Alternative. *Id.*

Both the Stoughton and the Whittenton corridors would pass through the Hockomock Swamp, which represents one of the few remaining bioreserves in southern New England that provide enough contiguous habitat to support area sensitive wildlife in a safe and stable condition. EPA designated the Hockomock Swamp as a Priority Wetland based on its high quality characteristics (including wildlife habitat value) and vulnerability to environmental degradation in September, 1987. The Commonwealth designated it an Area of Critical Environmental Concern (“ACEC”) in 1990. The designation document states “The Hockomock Swamp clearly is unique in all of Massachusetts. It is the largest vegetated freshwater wetland in Massachusetts. Its significance is enhanced by the fact that so many resource features are present in this area - wetlands, floodplains, rivers and streams, lakes and ponds, extensive wildlife and rare and endangered species and natural areas, regional aquifers, farmlands, historic and archaeological resources, and scenic views and landscapes. The uniqueness of the habitat of the Hockomock area cannot be overstated.”¹³ In addition, the Stoughton corridor would pass through the ecologically significant Pine Swamp, which is an Atlantic White Cedar wetland that supports a state-listed butterfly. The direct permanent and temporary adverse impacts to these important aquatic resources and to other wetlands and streams in the corridor, would, in the Region’s view, be substantial and more severe than those associated with the Rapid Bus Alternative.

2. Secondary Impacts

a. Aquatic Resources

Secondary impacts are effects on an aquatic ecosystem that are associated with a discharge of dredged or fill materials, but do not result from the actual placement of the dredged or fill material. The DEIS (page 4.16-63) correctly defines secondary impacts and provides an accurate generic discussion of the types of secondary impacts that must be considered. The DEIS explains that along existing active rail lines (e.g., the Fall River Secondary), secondary impacts would likely be “negligible” because “reconstruction of the right-of-way ... would not result in additional fragmentation of aquatic habitat because the existing embankment would be re-used and existing culverts and bridges would be replaced in-kind.” Generally, the Region agrees and is less concerned about secondary adverse impacts to adjoining wetlands and water bodies where there are existing,

¹³ http://www.mass.gov/dcr/stewardship/acec/acecs/designations/hock_des.pdf, at 7-8.

active rails lines. In contrast, the Region is greatly concerned about secondary adverse impacts to aquatic resources along those portions of the Stoughton and Wittenton corridors where no embankment exists or where a narrow embankment has been abandoned for decades and the forest canopy now is mostly unbroken. Section 4.14 on Biodiversity, Wildlife and Vegetation, presents a thorough description and reasonable evaluation of secondary adverse impacts upon aquatic resources and wetland dependent wildlife. Still, we believe that the evaluation is lacking adequate detail in a few areas, as explained below.

Along portions of the rail corridors where we are more concerned, examples of secondary impacts that may result from this project include downstream changes in hydrology and water quality, decreased primary productivity due to removal of vegetation, and habitat fragmentation and degradation. Degradation of habitat specifically refers to a decrease in the health or ecological integrity of the existing habitat. Edge effect can be viewed as a reduction in habitat integrity at the boundary of a transportation corridor caused by construction disturbance, vegetation clearing, storm water runoff, or other degrading factors that extend into the natural habitat. For example, the DEIS explains that, “[i]n locations where single track sections are proposed (much of the Southern Triangle, sections of the Stoughton Line and along the Whittenton Branch), the canopy gap will vary between approximately 40 to 80 feet in width. In locations where double track sections are proposed, the canopy gap will vary between 60 to 100 feet in width.” Page 4.16-80 of the DEIS notes that “[c]anopy clearing would be required along the right-of-way where the elevated trestle would be located within the Hockomock Swamp to accommodate additional height requirements associated with the trestle. Canopy clearing generally occurs within upland forest, though portions would occur in wetland resources. Canopy clearing would not result in additional impacts to wetland resources as this work would occur in uplands.” We disagree with this assessment of the potential for additional impacts. In forested wetlands with a closed or nearly closed canopy, e.g., substantial portions of the Stoughton alignment through the Hockomock Swamp, even an opening of 40 feet could set in motion serious immediate and longer term secondary adverse impacts to adjoining wetlands and wetland dependent wildlife. The FEIS should provide a more thorough and specific evaluation of the potential for adverse impacts from canopy clearing, especially across the Hockomock Swamp.

Several types of environmental harm would result from the construction and operation of the Stoughton or Whittenton Alternatives. Outright loss of between approximately 10 – 12 acres of wetland habitat would occur. Adjacent aquatic and wetland habitats would be damaged by sedimentation during construction. Even with standard erosion and sediment control measures, decades of experience with these types of projects shows that it is common that physical barriers/controls are not maintained as well as they should be and damage to adjoining aquatic resources occurs. In addition, and especially in forested and shrub wetlands, loss of canopy cover would increase surface and water temperatures and alter light penetration into adjoining areas. Surface water circulation and flow patterns could be altered, possibly drying out some wetlands or making others wetter, both of which would result in substantial changes to plant and wildlife communities. Interruption and/or other decreases of the nutrient production and export functioning of some of these wetland systems to be filled or affected could occur, damaging downstream aquatic

communities. All of these adverse impacts would contribute to fragmentation effects that would be caused by both these rail alternatives, and lead to an overall decrease in the productivity and functioning of the affected aquatic systems. The nature, extent, permanence, and severity of these types of secondary impacts need to be more fully evaluated in the FEIS.

With respect to methods employed to evaluate secondary impacts, on page 4.14-20, the DEIS explains that only vernal pools located within 100 feet of the centerline for an alternative were analyzed. For the Stoughton Electric Alternative, Table 4.14-13 shows that 91 vernal pools would be adversely affected by direct and secondary impacts. For the Whittenton Electric Alternative, Table 4.14-16 shows that 68 vernal pools would be adversely affected by direct and secondary impacts. However, and as explained above, that 100 foot distance is inadequate to properly assess secondary adverse impacts. It is likely that additional pools that would be affected by secondary adverse impacts from construction and operation of the Stoughton and Whittenton Alternatives were not included in the evaluation. For example, on page 4.14-36, the DEIS explains that for the Stoughton Alternative, “[t]here are several other clusters of vernal pools near the Stoughton Line, located outside of the 100-foot buffer, including a cluster of certified and potential vernal pools south of the North Easton station site; a cluster of certified vernal pools in Easton, between Foundry Street and the utility corridor; a cluster of potential vernal pools north of Bridge Street in Raynham; and a cluster of potential vernal pools south of Pine Swamp in Raynham and Taunton. Vernal pools in the Hockomock Swamp found between Foundry Street and Raynham Park also support a large population of spotted turtles (*Clemmys guttata*), no longer a state-listed species but still an important biodiversity concern.” Impacts to these additional pools should be factored into the analysis to enable a thorough evaluation of each alternative so that the alternative that would be least damaging to aquatic resources can be identified.¹⁴

b. CAPS analysis

Section 4.14 of the DEIS provides a comprehensive overview of biodiversity within the project study area. It also provides a useful discussion of several of the types of secondary impacts that can adversely affect biodiversity, i.e., fish and wildlife communities and plant communities. Beginning on page 4.14-68, the DEIS discusses the University of Massachusetts’ Conservation Assessment and Prioritization System (CAPS) model, which was used to assess both direct and secondary adverse impacts upon biodiversity for the Rapid Bus and each of the rail alternatives. As a landscape level approach for evaluating broad changes (i.e., secondary impacts) in biodiversity, the CAPS analysis is helpful for understanding longer-term biodiversity shifts that may occur.

On the other hand, we note that the CAPS model does not appear to be particularly useful when focusing on specific ground level features at a narrower scale. In the Summary Notes of Meeting for the South Coast Rail Wetlands Working Group from its April 16, 2009 meeting, the group discussed wetlands functional evaluation methods and the CAPS model specifically as a wildlife (or biodiversity) assessment method. A representative of Louis Berger, the Corps’ consultant, cautioned that CAPS has its limitation. He noted that functional assessment tools need to account

¹⁴ The same approach might also identify additional vernal pools along the Rapid Bus corridor that could be affected.

appropriately for incremental fills along existing corridors to avoid exaggerating factors such as fringe impacts, and to attribute higher value to affected wetlands as a unit. Whereas the CAPS model may better accomplish the second point with respect to treating wetlands as a unit or system, it does not appear to be sensitive enough to accurately evaluate incremental fills or particular ground features in specific locations. For example, the CAPS model results show no loss of Ecological Integrity Units (EIUs) for the Rapid Bus Alternative because, as the DEIS explains on page 4.14-99, "roadway geometry and other area changes associated with the Rapid Bus Alternative fall below the resolution of the CAPS model which operates at a landscape level of scale." Further, Table 4.14-23, Loss of Index of Ecological Integrity Units, summarizes the CAPS model results for the four rail alternatives and the Rapid Bus. The results show a difference of 7.2 EIUs lost between the Stoughton Alternative with a trestle and without (456.9 IEUs v. 464.1 EIUs, respectively), which is surprisingly small. The difference for the Whittenton Alternative is the same. At several meetings of the Wetlands Working Group, it was widely agreed that a trestle was substantially advantageous for reducing adverse impacts to wildlife, especially to address the barrier effect of a solid fill rail bed. If relying on the CAPS model results, one would be hard pressed to reach the same conclusion. Finally, the CAPS model does not assess watershed level impacts and changes to, among other wetland functions, hydrologic flow (other than connectivity), nutrient production and export, or nutrient removal/retention/transformation.

Our point is that the CAPS results are helpful when considering broad landscape level biodiversity changes to the South Coast Rail project study area with an operating rail line and without, but are not especially useful in distinguishing adverse impacts among particular rail alternatives to inform a determination of the alternative that is least damaging to aquatic resources. We recommend that the FEIS clarify the relevance and importance of the CAPS model results.

3. Significance of Impacts

As explained above, the Region seeks a variety of additional information about the extent, nature, and severity of direct and secondary adverse impacts to aquatic resources within the Stoughton and Whittenton rail corridors. Until we have evaluated that additional information, in combination with the information provided in chapter 5 of the DEIS (related to the cumulative effects on the aquatic ecosystem stemming from induced growth), we cannot reach conclusions regarding the significance of those adverse impacts and whether those alternatives could comply with section 230.10(c) of the section 404(b)(1) Guidelines.

VI. MINIMIZATION MEASURES AND COMPENSATORY MITIGATION

For a permit application to comply with § 230.10(d) of the 404(b)(1) Guidelines, the proposal must include all appropriate and practicable steps to compensate for unavoidable impacts. Furthermore, where the adverse impacts from an alternative would cause or contribute to significant degradation of waters of the U.S., the compensatory mitigation plan must first prevent or offset the environmental damage to an extent sufficient to comply with § 230.10(c) of the Guidelines (i.e., the

net impacts must no longer be significant). Whether a mitigation plan succeeds in sufficiently reducing significant impacts normally depends upon the extent to which it replaces or offsets the harm to the aquatic environment from the project. In this case, the types of aquatic resources most severely damaged by direct and secondary impacts would be forested and shrub wetlands, and vernal pools. It is technically difficult to restore or create these habitats successfully, let alone replicate the juxtaposition of habitats that results in the high biodiversity of large portions of the project study area. Furthermore, there are myriad risks inherent in wetland restoration and especially creation that make these already difficult ventures more perilous. Among others, these risks include mistakes in project site analysis and engineering design; imperfect project implementation; and unforeseen natural events such as drought or severe storms. For example, the hydrology of forested and shrub wetlands is quite complex and difficult to duplicate. It would take at least several years to be able to make an initial judgment about whether an attempt to restore or create a forested wetland is successful; to establish a fully functioning system could require more than a decade. Moreover, we know of few instances of well-documented, persistent, and fully established forested wetland creation.

1. Minimization Measures

a. Culvert Crossings

On page 4.16-60 of the DEIS, it notes that “[t]o the extent practicable, new or replaced culverts would be designed to comply with the Massachusetts Stream Crossing Standards. Where the stream crossing standards could not be met, stream crossings would be improved to the greatest extent practicable.” The DEIS notes on page 4.14-72 that the design of each culvert will be evaluated during the final design process to assess the potential effects on hydrology, stream flow, and fisheries. The Region supports these improvements to culverts for all stream crossings, regardless of the alternative selected.

On page 4.16-70 of the DEIS, it notes that “reconstruction of the right-of-way associated with the New Bedford Main Line would not result in additional fragmentation of aquatic habitat because the existing embankment would be re-used and existing culverts and bridges would be replaced in-kind, subject to consideration of the need not to compromise wetland hydrology.” We strongly recommend that, when considering any stream crossings where concerns arise about adverse impacts to up- or down-gradient wetland hydrology, the FEIS specifically provide that MassDOT will, whenever practicable, utilize culvert designs that maintain hydrologic flows and improve wildlife movements across the ROW. Possibilities include dry culverts for wildlife passage, or constructing culverts with grade control devices at inlets.

b. Wildlife Passage

Page 4.14-98 of the DEIS explains the use of “turtle gates” as a construction period mitigation measure that may be used to allow small vertebrates to cross the right-of-way during critical breeding periods. In addition to the temporary use of turtle gates during construction, under-rail

troughs and other permanent features such as the “critter crossings” constructed on the MBTA Greenbush line should be fully considered where appropriate and practicable along the right-of-way. This feature is discussed on page 4.14-109 of the DEIS as a potential measure to minimize the direct and secondary impacts on biodiversity. Page 4.14-110 of DEIS explains that the wildlife crossings constructed along the MBTA Greenbush Line have been shown to be used by numerous wildlife species, reducing the barrier effect of the rail. The FEIS should include more detailed information about potential locations for and design of wildlife crossings for all the alternatives.

c. Trestle

On page 3-66 and 3-67, the DEIS describes features of the Stoughton Alternative, including that “[a] trestle section is proposed in Easton and Raynham to minimize environmental impacts to the Hockomock Swamp Area of Critical Environmental Concern.” Elsewhere in the DEIS, it explains that the proposed trestle would be 8,500 feet long. Though the descriptions in the DEIS appear to include the trestle as a standard feature for the Stoughton Alternative, the FEIS should be explicit that the trestle is the only way the Stoughton (or Whittenton) Alternative would be considered and constructed. Furthermore, and again for the Stoughton Alternative, the Region believes that the FEIS should also include an evaluation of installing a trestle for the Pine Swamp crossing for the same reasons that the trestle is incorporated into the Hockomock Swamp crossing.

On a related point, we did not see the issue of trestle maintenance and emergency access addressed within the DEIS. The FEIS should describe how maintenance and emergency access will be accomplished along the 1.6 mile long Hockomock Swamp trestle crossing, especially if additional filling would be needed to construct a permanent or temporary access road.

2. Compensatory Mitigation

On page 4.16-104 of the DEIS, the section on Mitigation Goals and Objectives states that, “[t]he quantity of estimated permanent impacts and the associated proposed mitigation goals that have been identified are presumed to be an overestimation attributed to the methodology used to perform wetland delineation along the alternatives ... It is expected that wetland impacts and the associated mitigation area requirements would decrease following field delineation.” The Region is less sanguine in this respect. While some aquatic resources may have been overestimated, it is likely that others have been missed or underestimated.

In section 4.16.3.6, the DEIS describes federal and state requirements for compensatory mitigation, as well as a conceptual framework and approach for how MassDOT will develop a compensation plan once the LEDPA is determined. We generally agree with these descriptions.

However, it is premature to apply compensatory mitigation ratios and produce compensation requirements, as shown in Tables 4.16-60 through 4.16-65 for the rail and Rapid Bus Alternatives. As explained elsewhere in this Attachment, several issues remain to be addressed regarding the extent and nature of both direct and secondary adverse impacts and, more importantly, the severity

of those impacts. That additional information on adverse impacts will bear directly on not only the appropriate mitigation ratios, but also whether the extent, types and severity of adverse impacts from the alternatives, rail in particular, can be adequately compensated.

In that vein, on pages 4.16-107 and 4.16-111, the DEIS notes that, “[t]he majority of all impacts would occur in areas of deciduous wooded swamp wetlands.” In addition, on page 4.16-106, the DEIS notes that, “[d]ue to the scale of this project, and the limited availability of restoration opportunities in eastern Massachusetts, it is likely that [compensatory] mitigation would be characterized as creation.” In light of the cautions we stress above regarding the risks and unproven record regarding wetland creation in general and forest wetland creation in particular, we believe that it will be especially challenging for MassDOT to develop an adequate compensation plan.

VIII. CONCLUSION

In summary, the Region agrees that the Attleboro Alternatives are impracticable and can be dismissed from further consideration. We understand that in the context of the basic project purpose, the Rapid Bus would not perform as well as the rail alternatives and that the Stoughton Alternatives would perform best. Nevertheless, the Rapid Bus, Stoughton, and Whittenton Alternatives all meet the basic project purpose, albeit to varying degrees, and all remain practicable at this time.

Based on the information we have reviewed to date, it appears that the Rapid Bus Alternative would be less environmentally damaging to the aquatic ecosystem than the remaining rail alternatives. We also have requested an assortment of additional information regarding direct and secondary impacts for the Stoughton and Whittenton Alternatives, and the Region is unable to reach conclusions regarding adverse impacts for all the alternatives until we have evaluated that additional information.

With respect to adverse impacts, additional information regarding the presence and extent of aquatic resources is needed, as explained above. Further, again as explained above, additional evaluation of the scope, nature, and severity of direct and secondary adverse impacts needs to occur. Once that additional information is available and reviewed, the Region will be in a position to provide the Corps with its recommendation regarding the LEDPA.

Finally, and after the LEDPA is determined, substantive discussion can take place with respect to developing a comprehensive compensatory mitigation plan.

At this point, the Region has not reached a final conclusion with respect to compliance with the section 404(b)(1) Guidelines, due to the need for the additional information identified herein.